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Published in:
Journal of Personality

DOI:
[10.1111/jopy.12331](https://doi.org/10.1111/jopy.12331)

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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2018

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Verhagen, M., Lodder, G. M. A., & Baumeister, R. F. (2018). Unmet belongingness needs but not high belongingness needs alone predict adverse well-being: A response surface modeling approach. *Journal of Personality*, 86(3), 498-507. <https://doi.org/10.1111/jopy.12331>

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Unmet belongingness needs but not high belongingness needs alone predict adverse well-being: A response surface modeling approach

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Funding information

Grant 451-12-038 (M.V.) from the Netherlands Organisation for Scientific Research (NWO)

Abstract

Objective: Previous work has linked high levels of belongingness needs to low well-being, suggesting that high desire for social connection causes problems. Against that view, we hypothesized that problems stem especially from unmet belongingness needs. To examine this, discrepancies between belongingness needs and relationship satisfaction were measured.

Method: A total of 1,342 adolescents ($M_{\text{age}} = 13.94$ years, 48.6% boys) completed questionnaires about belongingness needs, relationship satisfaction, loneliness, depressive symptoms, and self-esteem. A combination of polynomial regression analyses with response surface modeling examined the effects of both fulfilled and unmet belongingness needs on well-being.

Results: Fulfilled belongingness needs did not affect adolescents' well-being. However, larger discrepancies between high belongingness needs and low relationship satisfaction were related to higher loneliness, more depressive symptoms, and lower self-esteem. Thus, well-being was most strongly affected among adolescents reporting an unmet need to belong.

Conclusions: We add to the current knowledge by emphasizing that especially belongingness needs that exceed relationship satisfaction, regardless of the actual levels of both, contribute to actual health outcomes. Thus, high need to belong is not detrimental per se, but only in combination with low relationship satisfaction. Implications for clinical practice could be to prevent unmet belongingness needs to ultimately alleviate negative affect and self-esteem.

KEYWORDS

loneliness, need to belong, relationship satisfaction, response surface modeling, self-esteem

1 | INTRODUCTION

Many theories agree that people have a fundamental need to connect with other people for protection, care, food, mating, and other benefits (e.g., Cacioppo et al., 2006; Ryan & Deci, 2000). In evolutionary history, having strong social bonds likely improved people's chances for both survival and reproduction, so natural selection would have favored ancestors

with a strong motivation for such bonds. The motivation to establish and maintain sustainable relationships with other people can be termed the *need to belong* (Baumeister & Leary, 1995). Insofar as people are able to satisfy this need to belong by sustaining positive, mutually supportive, ongoing relationships, their psychological and physical well-being are likely to be boosted (Holt-Lunstad, Smith, & Layton, 2010; House, Landis, & Umberson, 1988; Ryff & Keyes, 1995).

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The need to belong may be universal but not constant: It is stronger in some people than others. Like most other motivations, people may vary as to how strongly they desire to form and maintain social bonds. The assumption of variable motivation has been supported with a trait scale to measure individual differences, the Need to Belong Scale (Leary, Kelly, Cottrell, & Schreindorfer, 2013). In a series of studies with a total of $N = 2,641$, not a single case of someone's reporting a complete lack of this motivation was found. However, substantial and meaningful variations were observed.

Presumably, people have a need to belong because it is adaptive—but more is not necessarily better. Leary et al. (2013) found that high levels of the need to belong were associated with several problematic or undesirable traits, such as low self-esteem, high loneliness, high negative affect and neuroticism, and high fear of being criticized or rejected. Three possible explanations can be proposed for this relationship: Either the high need to belong or the low satisfaction could cause the other, or they might simply interact as independent variables. The first explanation for the seemingly negative effects of high need to belong would thus be that having mainly unsatisfying or too few relationships would cause people to feel a high need to belong, so that the high need would be a consequence of dissatisfaction, akin to finding high hunger motivation among people who do not get enough to eat. However, Leary et al. (2013) were able to rule out that interpretation. They found that scores on the Need to Belong Scale were unrelated to measures of perceived social support, social acceptance, and approval. Instead, they favored the second explanation, namely, that having a high need to belong makes one insecure and prone to worry (more than other people) about the possibility that one's relationships could prove fragile. The notion that high need to belong inherently engenders relationship insecurity is plausible in light of their cross-sectional data.

The present investigation tested a third hypothesis, however: The interactions between need to belong and relationship satisfaction would be nonlinearly associated with well-being. We reasoned that adolescents with a high need to belong are not necessarily prone to negative affect and low self-esteem in general—but may become so specifically when their relationships prove unsatisfying. To be sure, unsatisfying relationships would likely be unpleasant for everyone, including adolescents low in need to belong. Our reasoning, however, was that those adolescents low in need to belong would be much less bothered by relationship problems than would adolescents high in that need and would thus be less likely to develop maladaptive well-being.

Thus, our hypothesis was of an interaction between inner motives and external social circumstances, with both as

independent variables. Negative affect would rise mainly in the case of a strong but unmet need to belong. That is, it should peak among adolescents who report a high need to belong as well as lack of satisfactory human connection. Either without the other would be much less problematic.

1.1 | Unmet belongingness needs and subjective indicators

Previous work has established various negative effects of social isolation on health (for a meta-analysis, see Holt-Lunstad et al., 2010). There is also evidence linking high need for social connection to various physical and psychosomatic health complaints (Hartung & Renner, 2014; Mellor, Stokes, Firth, Hayashi, & Cummins, 2008; Piko, Varga, & Mellor, 2016). The interplay between social network quality and need for social connection has, however, not received as much attention. The only prior study that examined this interplay found that discrepancies between the need to belong and the level of satisfaction with relevant relationships were related to higher loneliness and lower life satisfaction in adults (Mellor et al., 2008). The present investigation used a more advanced statistical method to examine the relationship between well-being and different combinations of need to belong and relationship satisfaction in more detail. In addition, we examined multiple well-being measures and examined this relation in a younger population.

Our work began with the hypothesis that the most negative outcomes would be found among people with high need for belongingness combined with low relationship satisfaction—that is, people whose needs are mostly unmet. We measured three main outcome variables, the first being self-esteem. The sociometer theory of self-esteem (Leary & Baumeister, 2000; Leary, Terdal, Tambor, & Downs, 1995) proposes that self-esteem is a kind of internal gauge that tracks one's present and potential level of social acceptance. Self-esteem rises with social acceptance and is threatened by rejection (for a meta-analysis, see Blackhart, Nelson, Knowles, & Baumeister, 2009). Although people may defend their self-esteem effectively against an occasional rejection, it becomes difficult to sustain high self-esteem against chronic social exclusion. The more someone cares about social acceptance, the more self-esteem is contingent upon it (Crocker, 2002). Hence, we hypothesized that self-esteem would be low among people whose relationships are unsatisfying—but mainly insofar as people had high need to belong.

Similarly, having unsatisfying intimate relationships could increase vulnerability to depression for people with a high need to belong (Brown & Harris, 1978; Hagerty, Williams, Coyne, & Early, 1996), and one influential theory of depression suggests that it is linked to an inability or

unwillingness to relinquish impossible goals (Nesse, 2000). Thus, depression is not a reaction just to the external situation but to the mismatch between the person's inner motivations and external circumstances. Hence, we predicted that depressive symptoms would be highest among people exhibiting the combination of high need to belong with a lack of satisfying relationships.

Last, loneliness also reflects a mismatch between subjective desires (for human connection) and objective reality (Perlman & Peplau, 1981). Evidence indicates that lonely people do not necessarily lack social contact, and indeed they spend as much time as nonlonely people engaged in interpersonal interaction (Hawkley, Burleson, Berntson, & Cacioppo, 2003)—but they fail to find these interactions satisfying. The interactions could be of poor quality, but the dissatisfaction may also arise because the person's expectations were quite high (Russell, Cutrona, McRae, & Gomez, 2012). Therefore, we again hypothesized that loneliness would be highest among people who have high need to belong along with a lack of satisfying social bonds.

2 | METHOD

2.1 | Procedure

Dutch secondary schools (comparable to U.S. grade 7) were approached to participate. After receiving information about the study, six schools agreed to be included in the study. In accordance with the Dutch law, parents of the students received detailed information leaflets about the study and were asked to contact the research team by email, regular mail, or telephone in case they did not want to consent to their child's participation.

Adolescents were asked to participate during regular school hours and to provide informed consent. Participants completed online questionnaires on desktops in the presence of research assistants. Participants could choose a small present (e.g., a sticker sheet) as a reward for participation. Ethical approval was obtained from the universities' IRB (ECG2012-2711-701).

2.2 | Participants

At the time of data collection, 1,467 adolescents were enrolled in the participating schools. However, 80 adolescents (5.5%) were not present, 39 adolescents (2.7%) did not have parental consent for participation, and another 6 adolescents (0.4%) did not assent to participate themselves. This led to a final sample of 1,342 participants (48.6% boys) with a mean age of 13.94 years ($SD = 0.47$). According to the Dutch education system, 22.7% of adolescents followed a low to middle educational level (prevocational), 38.0%

followed a medium to high educational level (precollege), and 39.3% followed a high (preuniversity) educational level (see also Lodder, Goossens, Scholte, Engels, & Verhagen, 2016).

2.3 | Measures

2.3.1 | Loneliness

Loneliness was measured using the Dutch version of the peer subscale of the Louvain Loneliness and Aloneness Scale for Children and Adolescents (LACA; Marcoen, Goossens, & Caes, 1987). This scale consists of 12 items (e.g., "I feel alone at school") with a 4-point Likert scale ranging from *never* (1) to *always* (4). Higher scores indicate higher levels of loneliness. Cronbach's alpha was excellent ($\alpha = .91$).

2.3.2 | Depression

Depressive symptoms were measured using the Iowa short form of the Center for Epidemiological Studies Depression scale (CES-D; Kohout, Berkman, Evans, & Cornoni-Huntley, 1993). This 11-item scale measures the prevalence of depressive symptoms during the last week (e.g., "I was sad"). Respondents could answer on a 4-point scale ranging from *rarely or never* ($0 \leq 1$ day) to *usually or always* ($3 = 5-7$ days). Two items were reverse coded, after which higher scores indicated a higher prevalence of depressive symptoms (Cronbach's $\alpha = .84$).

2.3.3 | Self-esteem

The level of self-esteem was measured with a single-item: "I feel that I have high self-esteem" (Robins, Hendin, & Trzeniewski, 2001). Respondents could indicate to what extent this statement applied to them on a 5-point scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). Earlier research showed that this single-item scale is reliable and valid, and it performed similarly to the full Rosenberg Self-Esteem Scale (Robins et al., 2001).

2.3.4 | Need to belong

Belongingness needs were measured using a Dutch translation of the Need to Belong Scale (Leary et al., 2013). This 10-item scale measures the strength of the desire for acceptance and belonging. Adolescents indicated on a 5-point Likert scale the degree to which they agreed or disagreed with a certain statement ($1 = \text{strongly disagree}$, $5 = \text{strongly agree}$). An example statement is "I want other people to accept me." After recoding three of the items, a higher score indicated a

higher desire for acceptance (i.e., a greater need to belong). Cronbach's alpha was moderate ($\alpha = .61$).

2.3.5 | Relationship satisfaction

Satisfaction with social relations was measured with three items measuring satisfaction with the relationships with friends, parents, and classmates. Participants could indicate on a slide bar ranging from 0 (*not satisfied at all*) to 100 (*totally satisfied*) how satisfied they were with each of these forms of relationships. The higher the mean score, the higher the general satisfaction with relationships. Cronbach's alpha was moderate ($\alpha = .63$).

2.4 | Strategy of analyses

We used polynomial regression analyses in combination with response surface modeling (Edwards, 2002; Edwards & Parry, 1993; Shanock, Baran, Gentry, Pattison, & Heggstad, 2010) to assess agreement and discrepancy between belongingness needs (X) and relationship satisfaction (Y) in relation to several outcome measures (Z; loneliness, depressive symptoms, and self-esteem). This addresses the question of how specific combinations of two predictor variables relate to an outcome of interest. Combining polynomial regression with response surface modeling allows us to examine the degree of similarity (how do similar scores on X and Y affect Z?), the size of the discrepancy of two predictor variables (does the degree to which X and Y are different affect Z?), and the direction of the discrepancy (is Z affected differently if X is higher than Y or vice versa?; Shanock et al., 2010). The advantage of this technique over traditional difference score models is that more complex relationships between constructs can be addressed; additionally, mathematical constraints on the model and problems with reliability associated with difference scores are reduced (Cohen, Nahum-Shani, & Doveh, 2010; Laird & De Los Reyes, 2013).

Our procedures were based on previous work on discrepancies (Edwards, 2002; Shanock et al., 2010). To assess the degree of correspondence, the belongingness needs (X) and relationship satisfaction (Y) variables need to be measured on a similar scale. Therefore, we first rescaled the relationship satisfaction scale into a 1 to 5 scale, similar to the Need to Belong Scale. Next, both predictors were centered around the midpoints of the scales (i.e., 3.0). Each outcome measure was also transformed into a 1 to 5 scale to make graphical comparison between outcomes possible.

Before running polynomial regression analyses, we first examined percentages of cases in which

belongingness needs were higher, lower, or similar to relationship satisfaction. A cut-off of half a standard deviation was used to decide whether the standardized scores for one predictor were in agreement with the standardized scores from the other predictor ($<.5 SD$) or were discrepant ($>.5 SD$).

2.5 | Polynomial regression analyses and response surface modeling

For the polynomial regression analyses, we regressed need to belong, relationship satisfaction, the squared value of need to belong (X^2), the interaction term between belongingness needs and relationship satisfaction (XY), and the squared value of relationship satisfaction (Y^2) on each of the outcomes (loneliness, depressive symptoms, self-esteem) separately. Similar to previous studies examining discrepancy scores, we did not interpret the outcomes of these regression analyses directly but evaluated the model fits and used the output to examine the shapes of the response surfaces (Shanock et al., 2010). For a step-by-step guideline, see also Shanock et al. (2010). Because polynomial regressions are quite sensitive to multivariate outliers, these were removed if they exceeded the cut-off points for leverage (leverage $> 2n+2$), Cook's distance (Cook $> 4/n$), and standardized residual outliers (residuals > 2), as was suggested in previous research (Edwards, 2002). Seven cases were dropped for loneliness, eight for depressive symptoms, and two for self-esteem.

Next, the polynomial regression results were plotted in a three-dimensional space to give a detailed view of how different levels of agreement and discrepancies between need to belong and relationship satisfaction were related to the various outcomes by using response surface modeling (Edwards & Parry, 1993). We here describe the response surface for loneliness to illustrate the points of interest in the graphs (see also Table 2). First, we examined the slope and curvature along the *line of perfect agreement* (the white lines in Figure 1; these slices of the graph are depicted in Panels 1b, 2b, and 3b). This line describes loneliness for adolescents with similar scores on belongingness needs and relationship satisfaction (e.g., a high score on both scales). The slope ($a1$) along the line of perfect agreement indicates the effect of agreement between belongingness needs and relationship satisfaction on loneliness. The curvature ($a2$) along the line of perfect agreement indicates whether this relation is stronger for certain values of the predictors (i.e., whether loneliness is related in a nonlinear way to increases or decreases in both belongingness needs and relationship satisfaction). Second, the *line of incongruence* was examined (the black lines in Figure 1; these slices of the graph are depicted in Panels 1c, 2c, and 3c). This is the line presenting increases in the discrepancy between measures of belongingness needs and

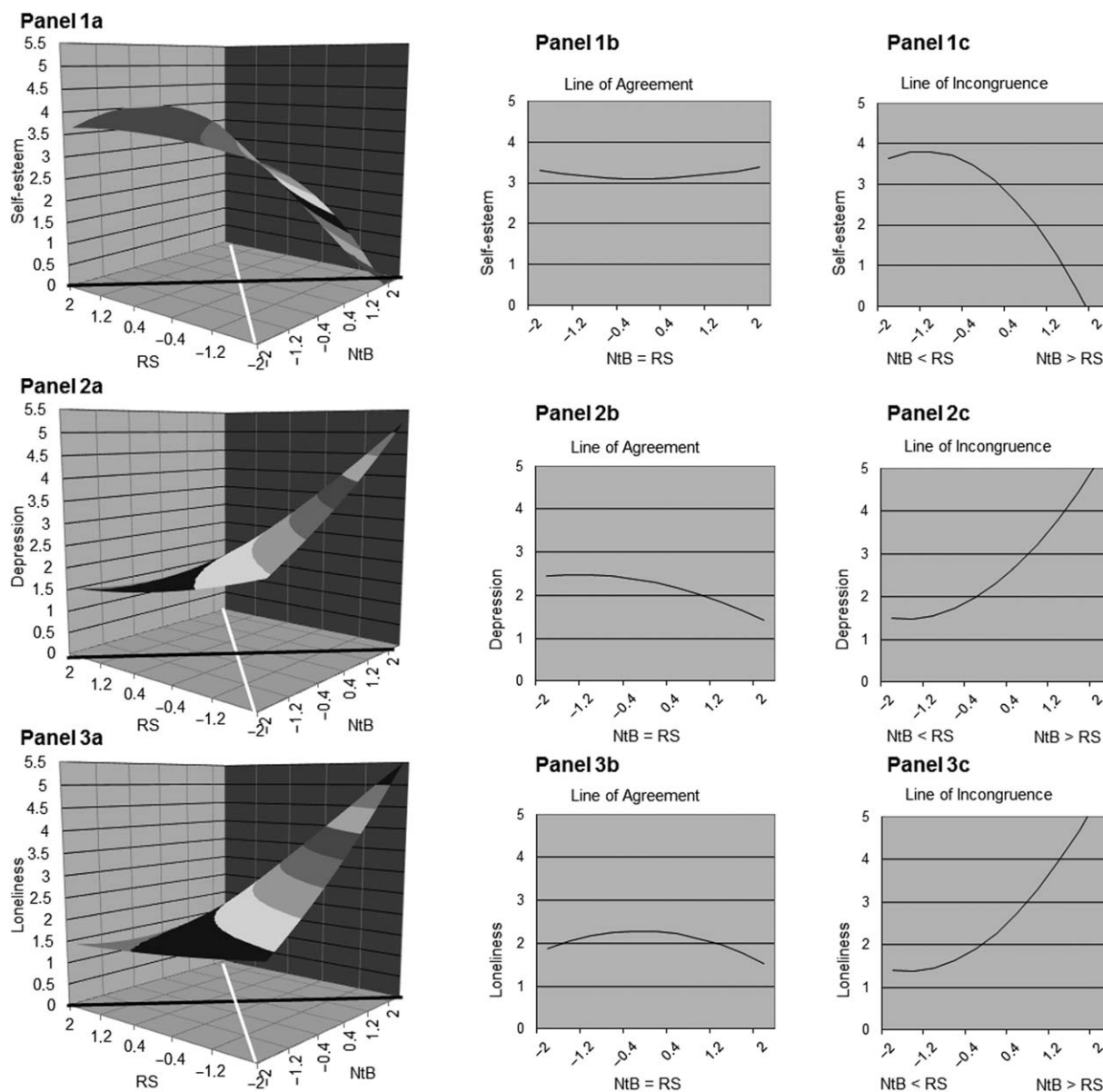


FIGURE 1 Response surfaces (panels A) and graphs for the lines of perfect agreement (panels B) and lines of incongruence (panels C) for self-esteem (top), depressive symptoms (middle), and loneliness (bottom). The white line represents the line of perfect agreement, the black line represents the line of incongruence

relationship satisfaction. The slope along the line of incongruence ($a3$) indicates the effect of the *direction* of the difference between belongingness needs and relationship satisfaction on loneliness (e.g., loneliness increases when need to belong is higher than relationship satisfaction). The curvature along the line of incongruence ($a4$) indicates the *degree* to which the difference between belongingness needs and relationship satisfaction is related to loneliness (e.g., loneliness increases more sharply as the difference between need to belong and relationship satisfaction increases). Because we had three outcome measures, we corrected for multiple testing by using the Bonferroni correction and setting the statistical significance threshold at $p < .017$ (α of .05 divided by 3).

3 | RESULTS

3.1 | Descriptives

Table 1 presents the mean scores, standard deviations, and correlations for all predictors and outcomes (based on the measures before rescaling to a 1 to 5 scale). Correlations were all significant and in the expected directions, with higher belongingness needs relating to lower relationship satisfaction and lower self-esteem, and to higher loneliness and more depressive symptoms. Higher relationship satisfaction was related to higher self-esteem, and to lower loneliness and less depressive symptoms. Correlations between the outcome variables were also significant and in the expected directions.

TABLE 1 Sample size, means, standard deviations, and correlations for belongingness needs, relationship satisfaction, loneliness, depressive symptoms, and self-esteem

Measure	Descriptives			Correlations			
	N	Mean	SD	1	2	3	4
1. Need to belong	1,334	3.32	0.57	—			
2. Relationship satisfaction	1,336	82.41	14.01	-.11**	—		
3. Loneliness	1,337	1.51	0.52	.25**	-.55**	—	
4. Depressive symptoms	1,336	0.51	0.46	.19**	-.58**	.55**	—
5. Self-esteem	1,335	3.60	1.20	-.17**	.27**	-.36**	-.36**

Note. ** $p < .01$.

After rescaling, participants' scores ranged between 1.00 and 5.00 for loneliness, between 1.00 and 4.76 for depressive symptoms, and between 1.00 and 5.00 for self-esteem.

We next calculated the percentages of agreement and disagreement between belongingness needs and relationship satisfaction. About one third of the sample (29.8%) had *similar* scores for belongingness needs and relationship satisfaction, about one third of adolescents (33.6%) had *higher* scores for belongingness needs than for relationship satisfaction, and the last third of adolescents (36.6%) had *lower* scores for belongingness needs than for relationship satisfaction.

The means per subgroup showed increasing scores for need to belong and decreasing scores for relationship satisfaction over the subgroups (NtB < RS vs. NtB = RS vs. NtB > RS; see Table 2). The means for loneliness and depressive symptoms were lowest in the subgroup with higher relationship satisfaction compared to need to belong (NtB < RS), intermediate in the subgroup with about equal levels of both (NtB = RS), and highest in the subgroup with lower relationship satisfaction compared to need to belong (NtB > RS). For self-esteem, a reverse pattern was observed, with highest mean levels of self-esteem in the subgroup in

which belongingness needs were lower than relationship satisfaction. The difference scores showed that relationship satisfaction is generally higher than belongingness needs (all means are below zero; see Table 2). The difference scores were -1.80 ($SD = 0.43$; for NtB < RS), $-.98$ ($SD = 0.17$; NtB = RS), and $-.08$ ($SD = 0.58$; NtB > RS), respectively.

3.2 | Polynomial regression for belongingness needs and relationship satisfaction

First, we examined the discrepancies between belongingness needs and relationship satisfaction in relation to the outcome measures. Model fits were good, $F(5, 1320)$, ranging from 31.65 to 136.67; adjusted r^2 s ranged from .10 to .34, all $ps < .001$. The polynomial regression coefficients were used to estimate surface values for the line of perfect agreement and the line of incongruence for all outcomes separately (Table 3).

The slope ($a1$) and curve ($a2$) of the line of perfect agreement indicate how the outcome measures were affected when belongingness needs and relationship satisfaction were equally high (e.g., both low, both high, or both average; see Figure 1, Panels 1b, 2b, and 3b). After correction for

TABLE 2 Means (SD s), min and max values for need to belong, relationship satisfaction, and well-being measures and difference scores for need to belong minus relationship satisfaction for the discrepant groups (NtB < or > RS) and the congruent group (NtB = RS)

	NtB < RS			NtB = RS			NtB > RS		
	Mean (SD)	Min	Max	Mean (SD)	Min	Max	Mean (SD)	Min	Max
NtB	2.87 (0.46)	1.00	3.70	3.38 (0.38)	1.40	4.20	3.76 (0.44)	2.00	4.80
RS	4.67 (0.31)	3.15	5.00	4.36 (0.40)	2.61	5.00	3.84 (0.57)	1.00	4.85
Loneliness	1.36 (0.43)	1.00	3.33	1.63 (0.50)	1.00	3.22	2.06 (0.85)	1.00	5.00
Depressive symptoms	1.43 (0.44)	1.00	3.91	1.58 (0.49)	1.00	3.67	2.03 (0.72)	1.00	4.76
Self-esteem	3.89 (1.18)	1.00	5.00	3.74 (1.06)	1.00	5.00	3.17 (1.22)	1.00	5.00
Difference score	-1.80 (0.43)	-3.49	-1.26	$-.98$ (0.17)	-1.26	$-.69$	$-.08$ (.58)	$-.71$	3.17

Note. NtB = need to belong; RS = relationship satisfaction; Difference score = NtB minus RS.

TABLE 3 Shape of the response surface for both agreement and incongruence between belongingness needs and relationship satisfaction on loneliness, depressive symptoms, and self-esteem

	Loneliness		Depressive symptoms		Self-esteem	
	<i>B</i>	<i>SE(B)</i>	<i>B</i>	<i>SE(B)</i>	<i>B</i>	<i>SE(B)</i>
Line of perfect agreement						
Slope (<i>a1</i>)	−0.09	.11	−0.26	.10	0.02	.22
Curve (<i>a2</i>)	−0.14	.06	−0.09	.06	0.06	.13
Line of incongruence						
Slope (<i>a3</i>)	1.04***	.07	0.93***	.07	−1.07**	.15
Curve (<i>a4</i>)	0.30***	.06	0.27***	.05	−0.40***	.12

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

multiple testing, the slopes and curves for the lines of perfect agreement were not significant, indicating that when belongingness needs and relationship satisfaction were at a similar level (e.g., both high), they were not significantly related to social-emotional well-being.

The slopes (*a3*) and curves (*a4*) of the lines of incongruence indicated that both the size and the direction of the discrepancies were significantly related to social-emotional well-being. For both loneliness and depressive symptoms, the slopes (*a3*) and the curves (*a4*) of the lines of incongruence were significant and positive; for self-esteem, the slope and curve of the line of incongruence were significant and negative (see Figure 1, Panels 1c, 2c, and 3c). The significant curves indicate that increased discrepancies between belongingness needs and relationship satisfaction were related to higher loneliness and more depressive symptoms, and to lower self-esteem. The significant slopes indicate that the outcomes were more strongly affected when belongingness needs were higher than relationship satisfaction, compared to when belongingness needs were lower than relationship satisfaction.

4 | DISCUSSION

Wanting good social relationships and having them are two separate things. We found that the dispositional need to belong was only slightly (and negatively; $r = -.11$) correlated with general satisfaction with one's interpersonal relationships. Moreover, our sample was about equally distributed among the three possible combinations, namely, those for whom desire to belong exceeded satisfaction with relationships, those for whom relationship satisfaction exceeded desire to belong, and those for whom desire and satisfaction were about evenly matched. These patterns would seem to justify our treating need to belong and relationship satisfaction as independent variables, rather than proposing that one causes the other.

Adolescents' well-being was a result of the interaction between desire to belong and relationship satisfaction.

Loneliness, depression, and low self-esteem were mainly found among adolescents who had high need to belong in combination with low relationship satisfaction or, more precisely, belongingness needs that exceeded relationship satisfaction, regardless of the actual levels of both. All in all, this strengthens the idea that adverse consequences of discrepancies between belongingness needs and relationship satisfaction could be present over the whole range of belongingness needs and not only among adolescents with high needs.

Our results suggest a refinement of the speculative conclusion by Leary et al. (2013) that having a high need to belong is a cause of insecurity or other distress. In our data, adolescents with high levels of need to belong showed good levels of well-being, including low depression, low loneliness, and high self-esteem—as long as they also had satisfying relationships. It is thus not the need itself but rather unmet needs that reduce well-being. The only previous study that examined this likewise showed that unmet belongingness needs (based on dissatisfaction with relationships)—not a high belongingness need in and of itself—made individuals especially prone to loneliness (Mellor et al., 2008).

Our findings also contradict the simple view that a lack of satisfying relationships is inherently disastrous for everyone. To be sure, experiencing such a lack is perhaps never advantageous, but the extent to which it relates to negative outcomes varies considerably. For adolescents with low scores on the need to belong, a lack of satisfying relationships had at most a minor relation with well-being. Thus, the same (low) level of relationship satisfaction was linked to lower well-being among adolescents who really wanted to connect with others, but not among adolescents who did not have a strong need to belong.

The idea that some people may not experience reductions in well-being in response to low relationship satisfaction seems to contradict the notion that it is adaptive to experience loneliness, depression, or lower self-esteem in these situations, insofar as these negative feelings could motivate people to invest in their social relations (Allen & Badcock,

2003; Cacioppo et al., 2006; Gardner, Pickett, Jefferis, & Knowles, 2005; Leary & Baumeister, 2000). However, evidence of genuinely beneficial consequences of low self-esteem, depression, and loneliness is scarce. Our findings suggest that some people may fare reasonably well despite not having much in the way of satisfying relationships. It is also possible that some people may respond to unmet belongingness needs by adjusting their needs downward, rather than adjusting the fulfillment of these needs. This idea needs to be explored in future research, as the correlational nature of our study does not allow drawing conclusions regarding causality in these relations.

Next to this causality question, some other interesting issues arise. Our investigation relied on the measure of general need to belong developed by Leary et al. (2013). It is based on the assumption that people vary in how much they desire to connect with other people in general, but it does not address the possibility that a person may have different degrees of belongingness needs for different relationships. It is conceivable, for example, that some people care greatly about relationships with peers but not about relationships with parents, so their well-being might be affected more by the quality of the peer relationship than the filial one. This possibility remains for future research. Most work on belongingness has assumed that people need a certain minimum of satisfying relationships (Baumeister & Leary, 1995), but it remains largely unknown whether it matters which sources are actually fulfilling these needs. According to the social production function theory, people can replace both specific social goals and sources to fulfill those goals in order to achieve well-being (Ormel, Lindenberg, Steverink, & Verbrugge, 1999). This implies that it may not matter which sources fulfill the need to belong, as long as relationship quality is sufficient overall. Apparently, high belongingness needs could also be partially fulfilled by imagined intimacy with media figures, especially in the absence of a romantic partner (Greenwood & Long, 2009). As imagined relationships will lack (regular) contact and interaction possibilities, these pseudo-relationships may prove unsatisfactory in the long run (Baumeister & Leary, 1995).

Another avenue that could be explored in more depth is the possibility of developmental changes in belongingness needs over time. A previous study showed that belongingness needs decreased significantly with increasing age, although the effect was weak (Leary et al., 2013). However, the same study showed that relations among need to belong and loneliness, negative affect, and self-esteem were similar across age (Leary et al., 2013). There may nevertheless be developmental shifts as to which relationships are most important for well-being. However, whether changing relationships (e.g., changes in relationships with parents as one gets older) alter the strength of the links with well-being

remains for further study. Our findings do suggest that experiencing unmet needs in and of itself will affect well-being, regardless of one's age or which source is lacking in fulfilling belongingness needs.

The emphasis on unmet needs is further supported by our findings about high levels of relationship satisfaction. As our figures show, the link to relationship satisfaction was rather flat above the midpoint. That is, having above-average relationship satisfaction did not increase self-esteem or reduce depression and loneliness very much, as compared to being average on relationship satisfaction. It should be noted, however, that the average of relationship satisfaction was quite high, so possibly a ceiling effect could explain why having above-average satisfaction did not affect well-being to a great extent. Put another way, as long as belongingness needs are met, not much is gained by meeting them abundantly rather than merely adequately.

5 | STRENGTHS AND LIMITATIONS

An obvious strong point of the present study was the use of a large population-based sample of adolescents. Adolescence is an eminently sensitive transition period, with changing relationships with parents and peer groups becoming increasingly important, both of which could easily affect fulfillment of belongingness needs. Indeed, by using a sophisticated analysis method (Edwards, 2002), we were able to refine previous ideas about associations between belongingness needs and relationship satisfaction on well-being. However, a limitation is that the reliability of the need to belong (.61) and relationship satisfaction (.63) scales was moderate at best. This was lower than in studies measuring belongingness needs in adult samples (Hartung & Renner, 2014; Leary et al., 2013; Mellor et al., 2008; Pickett, Gardner, & Knowles, 2004), though similar to another study of adolescents (Piko et al., 2016). A comparison of correlations between a study of adults (Mellor et al., 2008) and our study led us to believe that our sample is not divergent from other (older) samples. Second, we could not examine the direction of findings between (unmet) belongingness needs and social-emotional well-being. For future studies, it will be important to adopt a longitudinal perspective to examine causality or bidirectionality of the findings and to examine whether need to belong varies between different types of relationships.

6 | IMPLICATIONS FOR CLINICAL PRACTICE

Although our study was conducted in a population-based sample, there is no reason to believe that unmet belongingness needs would have different or no associations at all with

well-being in clinical populations. The subgroup with unmet belongingness needs (about one third of adolescents) reported the lowest well-being and should be the target of interventions. These adolescents appeared to be unable to close the gap between their higher belongingness needs and lower relationship satisfaction. A related possibility is that some of these adolescents have certain anxious attachment style characteristics (e.g., hypervigilance to threats in social situations), which impedes establishing meaningful relationships (Gere & MacDonald, 2010). It follows quite logically that one should aim at experiencing fulfilled belongingness needs as a means to improve well-being. One way to accomplish this might be to design clinical interventions to lower the need to belong, as that removes one risk factor for depressive symptoms, loneliness, and low self-esteem. It is, however, not clear that this basic need can be effectively reduced, and moreover, there is some possibility that reducing people's need to belong might produce undesirable side effects, perhaps extending even to antisocial tendencies. A more promising route for clinicians could be to provide adolescents with alternative cognitions in case maladaptive cognitions or unrealistic expectations about their current and wanted belongingness levels are present. Another possibility would be to increase relationship satisfaction with tailored interventions aimed at maintaining healthy relationships (Hair, Jager, & Garrett, 2002; Tierney, Grossman, & Resch, 1995). A last possibility that could be explored is whether treating loneliness and depression leads to a decline in unmet belongingness needs. The underlying idea would be that alleviation of loneliness and depression increases possibilities to reconnect with others and, hence, increases relationship satisfaction.

7 | CONCLUSION

Problematic outcomes reflect an unfortunate combination of person and situation factors. To understand adolescent well-being, it is necessary to understand both the person's social world and the person's inner level of needs. A lack of satisfying relationships is not equally distressing for everyone. Depression, loneliness, and low self-esteem arise when the person strongly wants social connection yet fails to get it. In other words, when the actual need to belong is not fulfilled by existing relationships, this could affect adolescents' well-being. Targeting interventions at reaching fulfilled belongingness by increasing relationship satisfaction is a promising avenue to alleviate social-emotional well-being in adolescents.

ACKNOWLEDGMENT

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Preparation of this manuscript was supported

by Grant 451-12-038 (M.V.) from the Netherlands Organisation for Scientific Research (NWO).

CONFLICT OF INTERESTS

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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How to cite this article: Verhagen M, Lodder GMA, Baumeister RF. Unmet belongingness needs but not high belongingness needs alone predict adverse well-being: A response surface modeling approach. *J Pers.* 2018;86:498–507. <https://doi.org/10.1111/jopy.12331>